ASBESTOS ABATEMENT AND DEMOLITION WORK PLAN

4291 RICHMOND RD
WARRENSVILLE HTS., OHIO 44122

PREPARED FOR:

CUYAHOGA COUNTY DEPARTMENT OF DEVELOPMENT
2079 EAST NINTH STREET
CLEVELAND, OHIO 44115

PREPARED BY:

NTWA, LLC
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WARRENSVILLE HTS., OHIO 44122

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1.0 INTRODUCTION

This Asbestos Abatement and Demolition Work Plan is prepared for the environmental abatement activities at 4291 Richmond Rd. Any reproduction of this manual without the written consent or approval of NTWA, LLC (NTWA) is strictly prohibited. This report is divided into two (2) sections namely Asbestos Abatement and Demolition Plan. Pursuant to the Ohio Administrative Code (OAC) Chapter 3701 et. al, *a building owner may choose to abate its own property by itself, provided a licensed Asbestos Hazard Evaluation Specialist is on board at all times to monitor the abatement activities in strict accord with the governing rules and regulations.*

This Work Plan may be modified periodically as needed to incorporate any future changes to the rules and regulations governing Asbestos, Lead Abatement either additions or deletions to the existing regulations. Known ACMs are: Plaster, Drywall, Floor Tile, Pipe Insulation, Mudded fittings, tank insulation, mud insulation, cove base, fire doors, sink insulation, cementitious elevator pads and other Presumed Asbestos Containing Materials (PACM) that may be encountered during the project.

2.0 PRE-JOB NOTIFICATIONS.

All notifications and revisions will be sent to the Ohio Environmental Protection Agency. 50 W. Town Street, 7th Floor, Columbus, Ohio 43216

Prior to each working day, a briefing and safety meeting will be held. Covered topics will include the day's work plan, safety topics fire and emergency actions. Our first day on the job will consist of setting up equipment and mobilizing on site. We will take the workers on a tour of the facility and go over the Abatement strategy, Site Health and Safety Plan and the interior Demolition Plan where applicable. We will then perform a debris clean-up inside the property where it is necessary. The scope of work is listed below according to HZW Environmental Consultants draft comprehensive asbestos survey report.

- Removal and disposal of approximately 174,174 SF of acoustical ceiling and wall plaster -popcorn texture pattern
- Removal and disposal of approximately 11,398 SF of drywall system.
- Removal and disposal of approximately 8,186 SF of 12”x12” Floor Tile.
- Removal and disposal of approximately 6,745 SF of 9”x9” Floor Tile.
- Removal and disposal of approximately 500 LF of pipe insulation.
- Removal and disposal of approximately 4,570 mudded fittings.
- Removal and disposal of approximately 376 SF of tank insulation
- Removal and disposal of approximately 6 SF boiler mud insulation.
- Removal and disposal of approximately 13,666 SF of cove base.
- Removal and disposal of approximately 112 Fire doors
- Removal and disposal of approximately 272 SF of sink insulation.
- Removal and disposal of approximately 6 cementitious elevator pads.

3.0 ASBESTOS, ABATEMENT STRATEGY.

Asbestos Abatement strategy for the project may differ from location to location or floor to floor depending on the areas or locations where ACM/PACMS are encountered as contained and identified in HZW Environmental Consultants Asbestos survey. In general, the strategy will comprise of full containment of the building ACM/PACMS removals. Pipe Insulation (TSI) can be removed either by Glove-bag Method or Cut and Wrap method. Abatement of ACMs will commence from the top floor down. Upon the clearance of a particular floor. Demolition will follow after all abatement is completed. The subject floor will be closed to intruders until the final clearance is satisfactory and acceptable.

Airborne fibers which are generated by disturbance of asbestos containing material may remain suspended in the air for long periods of time, because of their small size and aerodynamic properties, therefore, care will be taken to properly prepare the work area and prevent these airborne fibers from migrating via air currents to other parts of the building.

The edge of all the windows will be sealed with 3" wide high-quality duct tape. After the edge has been taped, the window will be covered and sealed with 6 mil polyethylene. Spray glue and duct tape.

Any doors to room not containing ACM will be sealed off with 6 mil poly, the edges of the poly spray glued, and duct taped to the walls extending beyond the door openings.

Additionally, because of the demolition and renovation, other safety and health issues come into play, such as falling and tripping.

Debris and other items will be removed by NTWA, LLC. All floor holes will be blocked with insulation fiber and 6 mil poly to prevent floor to floor migration of asbestos fiber particles. Stationary items or those too large or heavy to move will be consolidated covered and sealed with 6 mil poly.

(a) **Testing the System:**

NTWA will test the pressure differential system before any ACM is wetted or removed. After the Work. Area has been prepared, the decontamination facility set up, and the exhaust unit (s) installed, we will start the unit(s) (one at a time). NTWA will demonstrate the operation and testing of the pressure differential system. Demonstration of a properly operating pressure differential system will include, but not be limited to the following:

- There is a noticeable movement of air through the Decontamination Area. Use smoke tube to demonstrate air movement from Clean Room to Shower Room, from Shower to Equipment Room and from Equipment Room to Work Area.

- Use of smoke tubes to demonstrate a positive motion of air across all areas in which work is to be performed. We will modify the pressure differential system as necessary to successfully demonstrate the above.

(b). **Use of System During abatement Operations:**

NTWA will start exhaust units before beginning work (before any ACM is disturbed). After the abatement work has begun, not to turn off units at the end of work shift or when abatement operations temporarily stop. We will not shut down the pressure differential system during encapsulating procedures until satisfactory condition is resumed.

We will start the abatement work at a location farthest from the exhaust units and proceed toward them. If an electric power failure occurs, we will immediately stop all abatement work and not resume until power is restored and exhaust units are operating again.

At the completion of the abatement work, we will allow AFDs to run to remove airborne fibers that may have been generated during abatement work and cleanup and to purge the Work Area with clean makeup air. The AFDs may be required to run for a longer period of time after decontamination. If dry or only partially wetted asbestos material was encountered during any abatement work.

(c). **Dismantling the system:**

When a final inspection of the abatement and the result of final air tests indicate that the area has been decontaminated, exhausted units will be removed the Work Area. Before removal from the Work Area, we will remove and properly dispose of the filters and sea] intake to the machine with 6 mil polyethylene to prevent environmental contamination from the primary (HEPA) filter of each AFD.

3.1 PERSONNEL DECONTAMINATION PROCEDURES

NTWA will perform removal of ACM within full negative air pressure containment, with critical barriers and Glove-bag or Wrap and Cut Method for pipe insulation. The appropriate option will be determined on a case by case basis. The decontamination chamber will be constructed outside of the entry doorway leading into the work area. All persons without exception must pass through this Decontamination Area. There will be no parallel routes for entry or exit.

There will be temporary lighting within the Decontamination Area as is necessary to reach a lighting level of 50-foot candles. The Decontamination Area will consist of a clean room, a shower room and an equipment room (contamination area).

(a). **Clean Room**

NTWA will provide a room that is for the purpose of changing into protective clothing. We will construct, using polyethylene sheeting, at least 6 mil in thickness. A triple air flap to provide a seal between the Clean room and the rest of the unit will be located so that access to Work Area from the Clean Room is through the shower. We will separate the Clean Room from the unit by a polyethylene doorway.

The workers are required to remove all street clothes in this room, dress in clean disposable coveralls, and put on respiratory protection equipment. We will be required to enter this room either from outside the structure dressed in street clothes or naked from the showers. We will have privacy barriers in place to provided privacy for both genders. We will keep the floor of the Clean Room dry and clean at all times.

We will not allow overflow water from shower to wet the floor in Clean Room. We will damp-wipe all surfaces twice after change, with disinfectant solution. We will provide a continuously adequate supply of disposable bath towers. We will provide posted information for all emergency phone numbers and procedures.

(b). **Shower Room**

A completely water-tight operational portable shower will be sued for transit by cleanly dressed workers heading for the work area from the Clean Room, or for the showering by workers headed out of the Work Area after undressing in the Equipment Room. Configuration of this shower unit. This room will be separated from the rest of the unit by 6 mil triple flap barriers.

We will provide splash proof entrances to the Clean Room and the Equipment Room with 3 doors arranged in the following configuration: Doors will be fabricated from overlapping sheets weighted at bottoms as required so that they quickly close after being released. Arrows will be put on sheet to indicate direction of overlap and/or travel.

The unit has shower heads and controls, providing temporary extensions of existing hot and cold-water drainage as necessary for a complete and operable shower. There will be a soap dish and a continuously adequate supply of soap will be maintained in sanitary condition.

We will provide a continuously adequate supply of dry towels. It will be arranged so that water from showering does not splash into the Clean Room or Equipment Rooms. We will arrange the water to shut off and drain the pump operation controls so that a single individual can shower without assistance from either inside or outside of the Work Area. There will be a flexible hose shower bead.

We will pump wastewater to drain utilizing 20 micron and 5 micron waste water filters in line to drain. We will change filters daily or more often if necessary, we will locate

Filters inside shower unit so that water lost during filter changes is caught by shower- pan,

(c). **Equipment Room (Contaminated Area).**

Work equipment, footwear and additional contaminated work clothing is to be left here. This is a change and transit area for workers. This room will be separated from the Work Area by a 6 mil polyethylene flap doorway.

(d). **Work Area**

The Work Area will be separated from the Equipment Room by two 6 mil flaps of polyethylene sheeting. We will damp-wipe clean a11 surfaces after each shift change.

(e). **Construction of Decontamination Area**

Walls and Ceiling: We will construct air-tight walls and ceiling using polyethylene sheeting, at least 6 mil in thickness. This will be attached to existing building components. If present or a temporary frame work will be built.

Floors: We will use l layer (minimum of 6 mil polyethylene) sheeting to cover floors in the Equipment, Shower (underneath shower pan), and Clean Rooms. We will provide a minimum of two (2) layers of poly at all times, using only clear poly to cover floors.

Doors: Doors shall be barricaded from 2 overlapping sheet with openings a minimum of three feel (3') wide, configured so that sheet overlaps adjacent surfaces. We will weight sheets at bottoms as required so that they quickly close after being released, putting arrows on sheets to indicate directions overlap and/or travel.

(f). **Electrical**

We will connect all electrical branch circuits in the Decontamination Area, particularly pumps in Shower Rooms, to a ground-fault circuit protection device located outside the work Area.

3.2 DECONTAMINATION SEQUENCE

(a). **Entering Work Area**

The worker will enter the clean room and remove street clothing, put on clean disposable coveralls and respirator, and pass through the Shower Room into the Equipment Room. Any additional clothing and equipment left in Equipment Room needed by the worker will be put on in the Equipment Room. The worker will proceed to the Work Area.

(b). **Exiting Work Area**

Before leaving the Work Area, the worker will remove all gross contamination and debris

- Once inside the Wash Room wet-clean the bags and/or equipment. When cleaning is complete. Pass items into Satellite Storage Area.
- Workers from the building exterior shall enter the Satellite Storage Area and remove the decontaminated equipment and/or containers for disposal.
- AEMS shall require these workers to wear full protective clothing and appropriate respiratory protection.

3.4 REMOVAL OF ASBESTOS CONTAINING MATERIALS (ACM'S)

NTWA will thoroughly wet, to the satisfaction of the environmental supervisor all the ACM that must be removed prior to stripping demoing and/or tooling to reduce fiber dispersal into the air. We will accomplish wetting by a fine spray (mist) of amended water or removal surfactant. We will saturate the material sufficiently to wet to the substrate without causing excessive dripping. We'll allow time for the water or removal surfactant to penetrate the material thoroughly, spraying the material repeatedly during the work process to maintain a continuously wet condition.

We will perforate the outer covering of any insulation that may have been painted and/or jacketed in order to allow penetration of amended water or removal surfactant, or carefully strip away while simultaneously spraying amended water or removal surfactant on the insulation to minimize dispersal of asbestos fibers into the air. We will mist the Work Area continuously with amended water whenever necessary to reduce airborne fiber levels. Another method of removal is the Glove bag method. NTWA may choose to use the Glove bag method by hanging the bags at predetermined distance apart along the pipe run for the removal and last may choose to utilize the Cut and Wrap method which entails cutting the pipe by utilizing powered saws and wrap the TSI. Pipes will be cut in 4-6 feet sections.

NTWA will remove saturated ACM in small sections from all areas, not allowing material to dry out. As it is removed, we'll simultaneously pack the material while still wet into disposal bags.
NTWA will evacuate the air from the disposal bags with HEPA filtered vacuum cleaner before sealing, twisting the necks of the bags. Bending over and sealing with a minimum of three wraps of duct tape. NTWA will clean the outside of the bags and move to the wash down station adjacent to the Equipment Decontamination Area.

Pipe Lagging: NTWA will wet the pipe lagging insulation with amended water using airless spray equipment, allowing for amended water to saturate insulation to the pipe and will then cut bands holding the pre-formed pipe insulation.

- Slit jackets at seams and cut any supporting wires. Remove pre-formed insulation in manageable chunks.
- Cut through jacket of corrugated air-cell insulation and saturate with amended water through corrugations. Cut in manageable sections and remove layers of insulation.

- Remove trawled-on or muddied elbows, tees, joints, and valve fittings in layers, wetting each layers as the previous layers is removed. In locations where pipe fitting insulation is removed from pipe with straight runs insulated with fibrous glass or other non-ACM material. Remove the non-ACM 6" from the point where it contact with the ACM.

NTWA will immediately place the chunks of insulation in a disposal bag, not dropping any insulation to the floor. During this gross removal, we will establish an opened 6 mil polyethylene barrier directly below the pipe lagging to prevent any accidental dropping of insulation to the floor. As a secondary barrier, we will install as a drop cloth a clear 6 mil sheet of poly in all areas where asbestos work is to be performed,

NTWA will remove residue on pipes, fittings, and pipe thread with a nylon brush, brushing toward the nozzle of a HEPA vacuum. We will then wet wipe the entire area from top to bottom.

After a minimum of three (3) thorough cleaning of work space and after a high degree of cleanliness has been achieved, we will complete the Certification of Visual Inspection and submit it to the Environmental Manager as notification that the work space *is* ready for inspection and final clearance testing.

FIRST CLEANING

NTWA will replace the pre- filter in the Air filtration Device, cleaning all surfaces of the Work Area, including the outside surface of critical barrier sheeting, tools, scaffolding and/or staging, by HEPA-filtered vacuuming, then damp cleaning and mopping. AEMS and it subs will not dry-dust or dry-sweep and will use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Continue cleaning until there is no visible dust, debris or residue on polyethylene sheeting and other surfaces.

NTWA will perform a complete visual inspection of all Work Area to completely dry while operating HEP A filtered fan units, maintaining operation of the pressure differential system during the drying period if necessary.

SECOND ROUND CLEANING

NTWA will repeat the cleaning and inspection in the same manner as the first round cleaning.

FINAL ROUND CLEANING

NTWA will carry out a final cleaning and inspection in the same manner as the first cleaning, and then submit the Certificate of Visual Inspection for the Environmental Consultant.

LOCK-DOWN

A lock down encapsulate which will not impede re-insulation shall be applied to all potentially contaminated surfaces and pipes. After completion of abatement, cleanup and lock-down procedures, allowing sufficient drying time, a second visual inspection by the Environment Consultant will be called for the final clearance can take place and then the pipes can be cut and remove.

REMOVAL OF CRITICAL BARRIERS

After final air samples are found to meet clearance criteria, we will remove critical barriers and completely dismantle and remove the Decontamination Area and move on to the next wing. The procedure will repeat itself until all floors are properly abated.

CLEAR AREA

NTWA will remove all signs, equipment. and other disposable. All surfaces shall be free of visible dust and debris; all disposal bags will be cleaned and moved to the holding area.

4.0 DISPOSAL

Waste Hauler: JMW Trucking
512 45TH Street SW, Canton, Ohio 44706

Disposal Facility: Minerva Enterprises
8955 Minerva Road S.E, Waynesburg, OH 44688

Packaging:

- Material will be packed, sealed and labeled according to the regulations.
- All ACM material will be transported by Service Transport, Inc. to Minerva Landfill
- All waste shipments will be manifested as per regulations.

Waste is packaged as previously described. Waste materials will be moved to the equipment room or materials transfer room. Packages will be wet wipe and HEPA vacuumed inside equipment room before double bagging/wrapping. Once double bagging/wrapping is completed waste will be placed into the holding room or shower room area.

Container is inspected by the supervisor for correctness and is labeled for disposal per regulations and specifications. Packages are then moved into a clean area and transported to an enclosed trailer parked in an designated area outside of the building.

Our competent person will prepare a manifest in accordance with project protocols in preparation for the removal and pick up of the trailer by JMW Trucking. JMW will be hauling the ACM to Minerva Enterprise as written on the last section of the manifest. Disposal manifests will be signed by the landfill and returned to the owner within 30 days of disposal.

GENERATOR AND/OR HAULER REQUIREMENTS

The asbestos materials will be packaged in impermeable dust tight containers (i.e. six (6) mil plastic bags or double 6 mil poly film) All containers will be labeled in large legible letter:

DANGER -CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD

5.0 SAFETY

The following work practices will also be utilized in the work area as additional required safety measures:
Our company promotes a safe workplace, free of accidents, by the use a safety meeting among the working crew every day before the start of the workday. Before the beginning of every workday our team will perform a safety meeting to discuss the day's tasks and goals and the safety measures to be taken to accomplish the day's goals safely. Meeting is documented on the job daily log. A weekly "Toolbox Talk" will take place on Fridays.

NTWA, LLC will comply with Fire Prevention and Detection of Construction Environmental Health and Safety Standard, which specifically address fire protection during construction activities. See NTWA, LLC Health and Safety Plan for Demolition and Abatement.

Personal Protection Equipment (PPE) and Use Once the Pre-cleaning starts no one will enter the work area without wearing as a minimum the following personal protective equipment: ½ face respirator equipped with HEPA filters and fitted to each individual person, full body disposable suit equipped with a hood, safety glasses and hard hats. Laborers are further required to wear gloves and ear protection inside the work area.

Decontamination Process Anyone who enters work area shall follow the following decontamination process to exit work area: Before entering Equipment room HEPA vacuum disposable suits thoroughly to ensure no visible ACM debris, proceed to equipment room and, without removing the respirator, remove safety glasses and hard hat and wet wipe and place inside the shower. Remove disposable suit and place in ACM bag for disposal. Proceed to walk into the shower wearing respirator, filters covered, or remove filters once in the shower and place HEPA filters inside ACM bag in the equipment room for disposal. Clean respirator, glasses, hardhat and finish showering thoroughly. Proceed to clean room, dry all equipment and finish dressing. Stow respirator into a protective bag for re-use.

Daily Containment Inspections Our competent person and crew will inspect the containment for breaches and damages prior to the removal of any ACM on a daily basis. Any deficiencies are to be resolved before proceeding with any ACM removal activities.